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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,254	11/26/2003	David J. Yonce	279.628US1	6063

45458 7590 03/24/2010

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ART UNIT	PAPER NUMBER
3766	

NOTIFICATION DATE	DELIVERY MODE
03/24/2010	ELECTRONIC

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/723,254
Filing Date: November 26, 2003
Appellant(s): YONCE ET AL.

J. Kevin Parker
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

This is in response to the reply brief filed 9/9/09 appealing from the Office action mailed 7/15/08.

REMARKS

The Examiner has reviewed the Reply Brief filed by the Appellant in 9/9/09, and offers the following comments:

1) On page 2 of the Reply Brief, the Appellant asserts Levine does not disclose anything even remotely close to systems for computing and displaying electrograms of a patient in a manner that shows how the morphology of the electrograms change over time or with respect to heart rate, respectively, and the Examiner does not assert otherwise.

The Examiner respectfully disagrees.

Levine discloses detecting, recording, calculating and displaying electrogram signals (abstract; column 12, lines 35-47) where the characteristic of morphology of the electrogram signals is compared to a predefined standard (column 8, lines 17-27), the signals changing over time (column 14, lines 60-63) and with respect to heart rate (column 14, lines 31-34).

In response to the Appellant's argument that the references fail to show certain features of the Appellant's invention, it is noted that the features upon which applicant relies (i.e., showing how the morphology of the electrogram signal changes) is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Examiner notes the limitations in the claims of "generating representative electrograms" and "computing

a representative electrogram" is not the same as "showing how the morphology of the electrogram signal changes" over time and with heart rate.

2) On page 2 of the Reply Brief, the Appellant asserts the Examiner has gone beyond giving the claims a broad reading and uses a interpretation that is overly abstract and just plain wrong, where the reading of the words in a claim is at odds with their normal usage in the English language, is contrary to the description of the claimed subject matter in the specification, and renders the claim recitation into nonsense.

The Examiner respectfully disagrees.

The Examiner has given the claim elements the broadest reasonable meaning and notes that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

3) On page 2 of the Reply Brief, the Appellant state the present invention is taught to be incorporated into any cardiac device with the capability of sensing cardiac electrical activity, including devices for monitoring only and those for delivering therapy in the form of electrical stimulation of the heart. The Examiner respectfully agrees.

The Appellant also states the description of a device in the specification having four sensing channels was for illustrative purposes only. The Examiner appreciates this is an example of a device that can be used with this invention. A four sensing channel device has served as the basis for the rejection of record.

4) On page 2 of the Reply Brief, the Appellant notes the discussion of the Q-T interval was not something specifically claimed, and was meant to give an example of a morphology change. The Examiner drew attention to the Q-T interval comment as the Appellant has emphasized morphology in the Appeal Brief and Reply Brief, when "morphology" is not a limitation found in the claims, and the Appellant has drawn on examples of morphology changes that are not even found in the specification apparently seeking to draw attention away from the claim language.

5) On page 3 of the Reply Brief, the Appellant asserts Levine nor Snell disclose a system component configured to compute an average electrogram from a plurality of electrograms taken over some time.

The Examiner respectfully disagrees.

The Appellant asserts Levine does not teach an average electrogram that is a time average, but rather Levine teaches an average of electrograms recorded at different locations at the same time.

The Examiner respectfully disagrees.

Levine discloses a first sensing channel and three other sensing channels. The portion of the electrogram signal recorded through the different sensing channels are obtained from different locations in the heart and different waveforms occur at different times on each of the channels. For a heart beating 72 beats a minute, the cardiac cycle occurs over 0.834 seconds. Since the cardiac cycle includes excitation of the atria and ventricle in a stepwise pattern, and the excitation takes time to travel

through the cardiac tissue, it is obvious the electrogram taken at the atrial location at a given time will be different from the electrogram taken at the ventricular location at the same time. It is the combination of the electrograms taken on four different channels over a span of, for example, the 0.834 seconds, the span read as comprising discrete intervals that become an average electrogram that is a time average.

While the Applicant calls attention to the subject matter in the specification, the claims are interpreted in light of the specification and limitations from the specification are not read into the claims.

6) On page 3 of the Reply Brief, the Appellant asserts Levine nor Snell disclose a system component configured to compute a plurality of average electrograms for a plurality of discrete time intervals, referred to as representative electrograms.

The Examiner respectfully disagrees.

The Appellant asserts Levine does not teach the four IEMG signals from different locations at the different times, rather the IEGM signals are all recorded at the same time.

The Examiner respectfully disagrees.

Levine discloses a first sensing channel and three other sensing channels. The portion of the electrogram signal obtained through the different sensing channels are obtained from different locations in the heart and different waveforms occur at different times on each of the channels. For a heart beating 72 beats a minute, the cardiac cycle occurs over 0.834 seconds. Since the cardiac cycle includes excitation of

the atria and ventricle in a stepwise pattern, and the excitation takes time to travel through the cardiac tissue, it is obvious the electrogram taken at the atrial location at a given time will be different from the electrogram taken at the ventricular location at the same time. It is the combination of the electrograms taken on the four different channels over a span of, for example, the 0.834 seconds, the span read as comprising discrete intervals that become an average electrogram that is a time average.

The Appellant asserts Levine does not teach the computing or storing the plurality of electrograms.

The Examiner respectfully disagrees.

Levine teaches computing the plurality of electrograms (column 7, lines 9-17), and storing the information (column 8, lines 48-54; column 15, lines 5-9).

7) On page 4 of the Reply Brief, the Appellant asserts Levine nor Snell disclose a system component configure to aggregately display a plurality of electrograms, each which have been recorded at different periods of time.

Examiner respectfully disagrees.

The Appellant found the Examiner's comments confusing, hence an attempt is made below to clarify the comments in the Examiner's Answer. Levine discloses monitoring the cardiac cycle at three different locations (an atrial IEGM, a ventricular IEGM, and a surface ECG complex). These three signals are displayed as shown in figure 10 (column 16, line 35-37). The Examiner agrees the electrogram signal is a recording of the electrical potential generated by the heart over time as the heart

polarizes and depolarizes during each heart cycle. The Examiner's point is that this polarization and depolarization occurs over time as the electrical stimulation wave travels across the heart, and the waveforms created at each of the different locations in the heart are different. When the ventricle, for example, begins to depolarize and the cells of the ventricle begin to contract, the atrial channel will not record this ventricular event, sometime called a far field event, until a later point in time when the electrical depolarization wave generated in the ventricle reaches the atria. Since the ventricular channel records the contraction originating in the ventricle at a first time and the atrial channel records the ventricular contraction as a far field wave at a second time, the electrograms related to the ventricular contraction are said to be recorded at different times, the difference in time being the time required for the electrical depolarization wave to travel from the ventricle to the atria. Since the cardiac cycle occurs over time and the cardiac cycle is measured at different locations providing different waveforms, the electrograms are read as being recorded over a plurality of discrete time intervals.

8) On page 5 of the Reply Brief, the Appellant asserts Levine nor Snell disclose a system component for computing an average of electrograms recorded while the heart rate is within a particular range.

Examiner respectfully disagrees.

Levine discloses a first sensing channel and three other sensing channels. The portion of the electrogram signal obtained through the different sensing channels are obtained from different locations in the heart and different waveforms occur at

different times on each of the channels. For a heart beating 72 beats a minute, the cardiac cycle occurs over 0.834 seconds. Since the cardiac cycle includes excitation of the atria and ventricle in a stepwise pattern, and the excitation takes time to travel through the cardiac tissue, it is obvious the electrogram taken at the atrial location at a given time will be different from the electrogram taken at the ventricular location at the same time. It is the combination of the electrograms taken on the four different channels over a span of, for example, the 0.834 seconds, the span read as comprising discrete intervals that become an average electrogram that is a time average.

Levine teaches electrograms can be grouped based on heart rate ranges enabling focus upon a single heart rate range, or different heart rate ranges (column 14, lines 31-34).

9) On page 5 of the Reply Brief, the Appellant asserts Levine nor Snell disclose 1) a system component configured to compute a plurality of representative electograms where each such representative electrogram is an average of electrograms recorded while the heart rate is within a different heart rate range, and 2) a system component configured to simultaneously display a plurality of electrograms, whether averaged or not, recorded while the heart rate is within different heart rate ranges and indexed to display electrograms by heart rate.

Examiner respectfully disagrees.

In response to the Appellant's argument that the references fail to show certain features of the Appellant's invention, it is noted that the features upon which applicant

relies as shown in quotations (i.e., a "different" heart rate, "simultaneously " display a "plurality" of electrograms, "whether averaged or not,") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Levine discloses a first sensing channel and three other sensing channels. The portion of the electrogram signal obtained through the different sensing channels are obtained from different locations in the heart and different waveforms occur at different times on each of the channels. For a heart beating 72 beats a minute, the cardiac cycle occurs over 0.834 seconds. Since the cardiac cycle includes excitation of the atria and ventricle in a stepwise pattern, and the excitation takes time to travel through the cardiac tissue, it is obvious the electrogram taken at the atrial location at a given time will be different from the electrogram taken at the ventricular location at the same time. It is the combination of the electrograms taken on the four different channels over a span of, for example, the 0.834 seconds, the span read as comprising discrete intervals that become an average electrogram that is a time average.

Levine teaches electrograms can be grouped based on heart rate ranges enabling focus upon a single heart rate range, or different heart rate ranges (column 14, lines 31-34). Levine discloses displaying three different cardiac waveforms, an atrial IEGM, a ventricular IEGM, and a surface ECG complex, as shown in figure 10 (column 16, lines 35-37), hence cardiac data such as the display a plurality of

electrograms recorded while the heart rate is within different heart rate ranges, indexed by heart rate is disclosed.

Based on the rejection of record and the discussion above, Levin et al., Snell et al. and Palmer et al. are deemed to teach the instant invention, the claimed subject matter.

Respectfully submitted,

/Frances P. Oropeza/
Patent Examiner, Art Unit 3766
November 30, 2009

Conferees

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